REMARKS

By this amendment, Claims 1, 2, 10, 18–20, and 28–29 are amended. No claims have been added or canceled. Hence, Claims 1–36 are pending in the application.

Each issue raised in the Office Action mailed September 24, 2008, is addressed hereinafter.

I.   ISSUES RELATING CLAIM AMENDMENTS

The amendments to the claims as indicated herein do not add any new matter to this application. Support for the amendments made to the claims can be found in at least the following paragraphs of the Specification: Paragraph [0035] ("In step 204, a packet sequence value is obtained from a header of the received packet. For example, a network element implementing the process of FIG. 2 extracts a TCP sequence number from an IP header that is carried in the ICMP packet.").

II.   ISSUES NOT RELATING TO ANY CITED ART — 35 U.S.C. §112, First Paragraph

Claims 1–36 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. By this amendment, Claims 1–36 satisfy all statutory requirements. Reconsideration is respectfully reconsidered.

III.   ISSUES RELATING TO CITED PRIOR ART

A.   CLAIMS 1–28 —*TALPADE in view of FAN*

Claims 1–28 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Pub No. 2004/0148520, by *Talpade* et al. ("*Talpade*"), in view of U.S. Patent No. 6,219,706, issued to *Fan* et al ("*Fan*"). Based on the following arguments, the rejections are respectfully traversed.

Independent Claim 1 recites:

> receiving an ICMP packet, wherein the ICMP packet carries a portion
> of a header associated with a connection in a connection-
> oriented transport protocol, and wherein the portion of the

> header includes a packet sequence value associated with the connection;

> obtaining the packet sequence value from the portion of the header that is carried within the ICMP packet;

> authenticating the ICMP packet by determining if the packet sequence value from the portion of the header that is carried within the ICMP packet is valid; and

> responding to the ICMP packet by updating a parameter value associated with the transport protocol connection only if the packet sequence value is determined to be valid.

(Emphases added.) A rejection based on obviousness cannot be upheld because a combination of *Talpade* in view of *Fan* fails to teach at least one or more features of Claim 1 as recited above.

Background of IP, TCP, and ICMP

Claim 1 recites an "ICMP packet," which as noted in the Specification, is described in RFC 792. According to RFC 792, an ICMP packet is "sent using the basic IP header." IP, TCP, and ICMP were well-known to persons skilled in the art at the time of the invention. The Internet Protocol (IP) header is specified in RFC 791, and may take the following form:

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|Version|  IHL  |Type of Service|          Total Length         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|         Identification        |Flags|      Fragment Offset    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  Time to Live |    Protocol   |         Header Checksum        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                       Source Address                          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                    Destination Address                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                    Options                    |    Padding     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
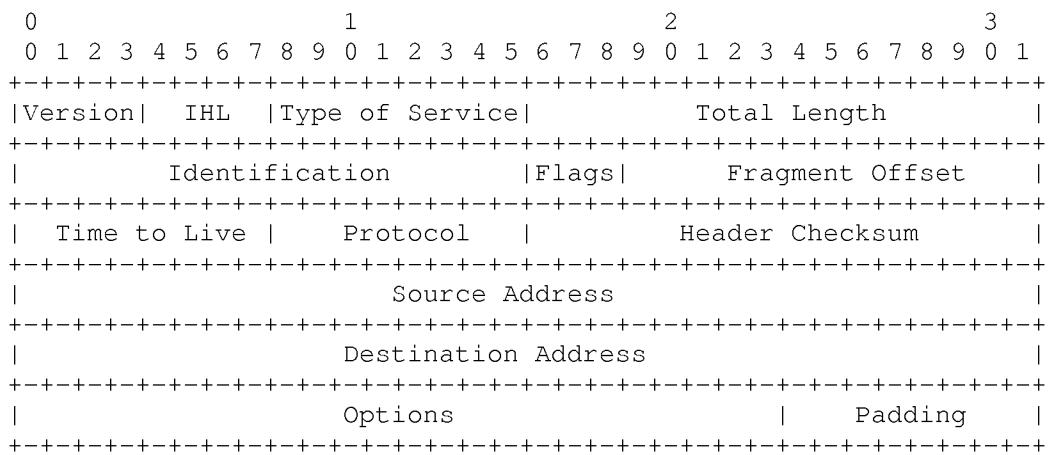
As is clearly shown, the IP header **does not contain any packet sequence number**.

An IP header is followed by data that is specified in many other protocols. For example, an IP header may be followed by a TCP packet. TCP packets are described in RFC 793. The following illustrates a TCP packet that follows an IP header:

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  MAC Header    |  IP Header     |  TCP Packet                  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

The TCP packet may take the following form:

```
0                   1                   2                   3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|          Source Port          |       Destination Port        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        Sequence Number                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                     Acknowledgment Number                     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  Data |           |U|A|P|R|S|F|                               |
| Offset| Reserved  |R|C|S|S|Y|I|            Window             |
|       |           |G|K|H|T|N|N|                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|           Checksum            |         Urgent Pointer        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                    Options                    |    Padding    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                             data                              |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

The **TCP packet has a packet sequence number**, shown as "Sequence Number," as bolded above. The TCP packet's packet sequence number is within the first 8 bytes/64 bits of the TCP packet.

Under ICMP, an IP header is also followed by an ICMP packet. The following illustrates am ICMP packet that follows an IP header:

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  MAC Header    |  IP Header     |  ICMP Packet                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

ICMP packets are described in RFC 792, and may take the following form:

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     Type      |     Code      |          Checksum             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                            unused                             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|      Internet Header + 64 bits of Original Data Datagram      |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
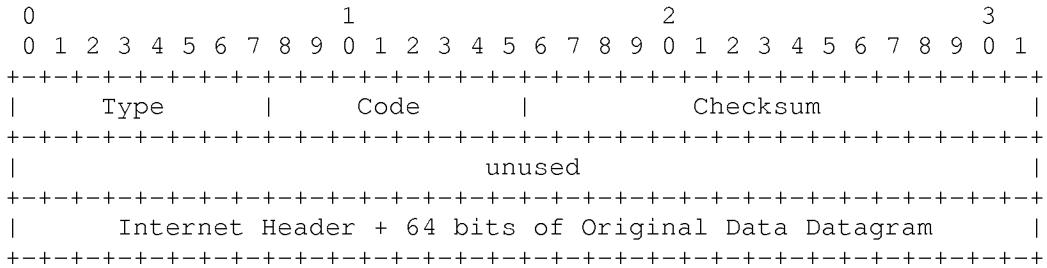
The diagram above is shown in wrapped-around format. The ICMP packet data comprises 32 bits x 3 rows or 96 bits. ICMP packets are sent about previously-sent datagrams, and therefore also refer to previously-sent datagrams. If an ICMP packet is sent a datagram that has a "packet sequence number," such as a TCP packet, then the ICMP packet would carry within it a "packet sequence number" that is within the first 64 bits of the original TCP packet, but carried in the ICMP packet starting at bit 65 of the ICMP packet data shown above. Thus, the only sequence number in the packet as a whole is carried within the ICMP payload data, and does not appear in a header after the IP header or elsewhere.

Claim 1

Claim 1 recites "obtaining the packet sequence value from the portion of the header [associated with a connection in a connection-oriented transport protocol] **that is carried within the ICMP packet**." The Office Action cites Talpade in combination with Fan to allegedly teach this feature. Talpade discloses analyzing the packet header fields for ICMP packets. ("The sensor filters analyze packet headers looking for filed values beyond the defined rang of valid values." Fan, Paragraph [0020].) However, as shown in the above explanation of ICMP structure, there is no TCP header after the IP header and before the ICMP packet data. Therefore, **packet header fields** for an ICMP packet **do not contain any "packet sequence values** from the portion of the header [associated with a connection in a connection-oriented transport protocol]." Thus, because Talpade teaches analyzing **packet header fields** for ICMP

packets, Talpade does not explicitly teach or disclose "obtaining the packet sequence value **from the portion of the header** [associated with a connection in a connection-oriented transport protocol] **that is carried within the ICMP packet**" as recited Claim 1.

Fan fails to "fill the gaps" left behind by Talpade. In contrast to Claim 1, Fan does not disclose any ICMP packets; instead, Fan discloses that the received packet is a UDP or TCP SYN packet. Fan discloses examining the packet header of the received UDP or TCP SYN packet, which contains a packet sequence value. (Fan, Col. 10: lines 27–37.) It is clear error to equate the "packet sequence value" that is examined in Fan with the "packet sequence value" as recited in Claim 1 because doing so ignores the explicit teaching that Claim 1's packet sequence value is "from the portion of the header [associated with a connection in a connection-oriented transport protocol] that is carried within the ICMP packet."

Because no combination of *Talpade* and *Fan* teaches one or more express features of Claim 1, it is respectfully submitted that Claim 1 is allowable over *Talpade* in view of *Fan*, and is condition for allowance.

Claim 10

Independent Claim 10 recites:

> receiving, at a TCP endpoint node in a TCP/IP packet-switched network, an ICMP packet, wherein the ICMP packet carries a portion of a TCP header associated with a TCP connection;

> obtaining a packet sequence number from the portion of the TCP header that is carried within the ICMP packet;

> authenticating the ICMP packet by determining if the packet sequence number from the portion of the TCP header that is carried within the ICMP packet is valid; and

> responding to the ICMP packet by **updating a maximum transmission unit (MTU) value associated with the TCP connection** only if the packet sequence number is determined to be valid.

Claim 10 recites "obtaining a packet sequence number from the portion of the TCP header that is carried within the ICMP packet." Claim 10 is allowable over the references for the same reasons stated above with respect to Claim 1.

Regarding "responding to the ICMP packet by **updating a maximum transmission unit (MTU) value associated with the TCP connection** only if the packet sequence number is determined to be valid," the Office Action fails to make a prima facie case of obviousness because the Office Action does not clearly articulate the reasons for its findings. The Office Action fails to show that the "updating" feature of Claim 1 is found in any combination of Talpade and Fan. Instead, the Office Action states:

> However, Talpade discloses forwarding traffic if the packet value is valid (Talpade: [0017] lines 27–30) and it would have been obvious to one having ordinary skill in the art to take different measures to allow traffic including, but not limited to, updating MTU value to increase transmission rate to allow traffic.

The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at ____ , 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). (MPEP 2142.) The Office Action fails to clearly articulate how "to take different measures to allow traffic including, but not limited to, updating MTU value to increase transmission rate to allow traffic," as asserted in the Office Action, discloses "**responding to the ICMP packet** by updating a maximum transmission unit (MTU) value associated with the TCP connection **only if the packet sequence number is determined to be valid**," as recited in Claim 1. Therefore, the rejection is not adequately supported by **evidence** from the art or elsewhere, or **reasons** that an appellate court could review.

Because no combination of *Talpade* and *Fan* teaches one or more express features of Claim 10, it is respectfully submitted that Claim 10 is allowable over *Talpade* in view of *Fan*, and is condition for allowance.

Independent Claims 18, 19, and 28 include features similar to Claim 1, except in the context of computer-readable media, in means-plus-function form, or as an apparatus claim. It is therefore respectfully submitted that Claims 18, 19, and 28 are patentable over *Talpade* in view of *Fan* for at least the reasons given above with respect to Claim 1.

Claims 29–36, 11–17, and 20–27 are dependent claims, each of which depends (directly or indirectly) on Claims 10, 18, 19, and 28. In addition, each of Claims 29–36, 11–17, and 20–27 introduces one or more additional features that independently render it patentable. Due to the fundamental differences already identified, to expedite the positive resolution of this case, a separate discussion of the features of Claims 29–36, 11–17, and 20–27 is not included at this time. The Applicant reserves the right to further point out the differences between the cited art and the novel features recited in the dependent claims.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

CONCLUSION

For the reason set forth above, all of the pending claims are in condition for allowance. The Examiner is respectfully requested to contact the undersigned by telephone relating to any issue that would advance examination of the present application.

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If any fees are due with this Reply, the Commissioner is hereby authorized to charge any

applicable fees and/or credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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Dated: October 31, 2008   /RhysWCheung#58648/

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